PHILADELPHIA AND READING RAILROAD:
WISSAHICKON CREEK VIADUCT
(Reading Railroad: Wissahickon Creek Viaduct)
Spanning Wissahickon Creek,
North of Ridge Avenue Bridge
Philadelphia
Philadelphia County
Pennsylvania

HAER No. PA-36

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
Washington, DC 20013-7127

HISTORIC AMERICAN ENGINEERING RECORD

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INVENTORY OF PHOTOGRAMMETRIC IMAGES

The glass photogrammetric plates listed below are not reproducible except with special permission. However, reference prints and film copy negatives have been made from the plates indicated by an asterisk (*) and are included in the Library of Congress collection of formal HABS/HAER photographs.

7 5" x 7" glass plate negatives (2 stereopairs and one stereotriplet) produced by Perry E. Borchers of the Ohio State University in 1971.

One survey control contact print from each plate; survey control information for each pair/triplet.

LC-HAER-GS05-B-1971-601L *	VIEW OF WEST SPAN FROM HIGHWAY BRIDGE TO THE SOUTH --LEVEL
LC-HAER-GS05-B-1971-601R	VIEW OF WEST SPAN FROM HIGHWAY BRIDGE TO THE SOUTH --LEVEL Left and right overlap: 90%
LC-HAER-GS05-B-1971-602L *	VIEW OF SE SPANS FROM SOUTH--INCLINED
LC-HAER-GS05-B-1971-602R	VIEW OF SE SPANS FROM SOUTH--INCLINED
LC-HAER-GS05-B-1971-602RC	VIEW OF SE SPANS FROM SOUTH--INCLINED 602L and 602RC overlap: 95% 602R and 602RC overlap: 95%

LC-HAER-GS05-B-1971-603L VIEW OF EAST SPANS FROM NORTH--LEVEL

LC-HAER-GS05-B-1971-603R * VIEW OF EAST SPANS FROM NORTH--LEVEL

Left and right overlap: 90%

4 Stereopairs of 2.5" x 2.5" master contact prints, each pair mounted on 5" x 7" cardstock, and
1 5" x 7" master contact print mounted on cardstock.

No original negatives; no survey control information. Overlap not calculated. Copy prints and copy negatives have been made from each image.

LC-HAER-PS13-2000-600 * ELEVATION OF BRIDGE

LC-HAER-PS13-2000-601 * BRIDGE FROM SIDE

LC-HAER-PS13-2000-602 * BRIDGE FROM SIDE

LC-HAER-PS13-2000-603 * CLOSE-UP OF PIERS

LC-HAER-PS13-2000-604 * CLOSE-UP OF STONEWORK

Single print

PROJECT INFORMATION STATEMENT

Photogrammetric images were incorporated into the HABS/HAER collections in the summers of 1985 and 1986. Inventories of the images were compiled and filed as data pages for each structure recorded. Since the glass photogrammetric plates are not reproducible except with special permission, a reference print and film copy negative were made from one plate of each stereopair and from the most informative plates in sequential sets. The reference prints and copy negatives were then incorporated into the formal HABS/HAER photograph collections.

The Photogrammetric Images Project was a cooperative endeavor between the HABS/HAER Division of the National Park Service and the Prints and Photographs Division of the Library of Congress. The reference prints and film copy negatives of the original plates were made by the Library of Congress Photoduplication Service with funds provided by the Library of Congress Flat Film Preservation Fund. Additional reproductions were made by HABS/HAER. The project was supervised by HABS/HAER Architect John A. Burns, AIA, and completed by HABS Historians Jeanne C. Lawrence (University of London) in 1985 and Caroline R. Alderson (Columbia University) in 1986.

ADDENDUM TO
PHILADELPHIA & READING RAILROAD, WISSAHICKON CREEK VIADUCT
(Reading Railroad, Wissahickon Creek Viaduct)
Pennsylvania Historic Railroad Bridges Recording Project
Spanning Wissahickon Creek, north of Ridge Ave. Bridge
Philadelphia
Philadelphia County
Pennsylvania

HAER No. PA-36

PHOTOGRAPHS

XEROGRAPHIC COPIES OF COLOR TRANSPARENCIES

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
1849 C Street, NW
Washington, DC 20240

HISTORIC AMERICAN ENGINEERING RECORD

ADDENDUM TO
PHILADELPHIA & READING RAILROAD, WISSAHICKON CREEK VIADUCT
(Reading Railroad, Wissahickon Creek Viaduct)

This report supplements three (3) data pages previously transmitted to the Library of Congress.

Location:	Spanning Wissahickon Creek, north of Ridge Ave. Bridge, Philadelphia, Philadelphia County, Pennsylvania.
USGS Quadrangle:	Germantown, Pennsylvania (7.5-minute series).
UTM Coordinates:	18/482350/4429260
Date of Construction:	1881-82.
Basis for Dating:	Plaque on bridge.
Date of Alteration:	1930.
Designer:	C. W. Buchholz (assistant chief engineer, Philadelphia & Reading Railroad).
Builder:	Nolan & Brothers Co.
Present Owner:	Norfolk Southern Railroad.
Present Use:	Railroad bridge.
Structure Type:	Stone arch.
Significance:	The Wissahickon Creek Viaduct marks the beginning of a resurgence in major stone arch bridge construction on American railroads after the panic of 1873.
Historian:	Justin M. Spivey, April 2000.

Project Information: The Historic American Engineering Record (HAER) conducted the Pennsylvania Historic Railroad Bridges Recording Project during 1999 and 2000, under the direction of Eric N. DeLony, Chief. The project was supported by the Consolidated Rail Corporation (Conrail) and a grant from the Pennsylvania Historical and Museum Commission (PHMC). Justin M. Spivey, HAER engineer, researched and wrote the final reports. Preston M. Thayer, historian, Fredericksburg, Virginia, conducted preliminary research under contract. Jet Lowe, HAER photographer, and Joseph E. B. Elliott, contract photographer, Sellersville, Pennsylvania, produced large-format photographs.

Description and History

By virtue of their location in Philadelphia's Fairmount Park system, the park's many bridges are well-recorded in visual media. The park is unusual for the variety of transportation routes that have crossed it — not only roads, but also several railroads, a trolley line (since removed), and even a proposed (but unbuilt) subway.[1] Stone masonry in the railroad viaduct crossing Wissahickon Creek echoes surrounding natural materials, softening the effect of a man-made imposition on the landscape. As with other bridges in Fairmount Park, the structure appeared in numerous picture postcard views during the late nineteenth century, and is still frequently photographed today. The Wissahickon Creek viaduct's wood and iron predecessors, despite harmonizing less with their setting, also drew artistic attention. A lithograph by C. M. Kandarich, for example, recorded the original Town lattice truss spans constructed by the Philadelphia, Germantown & Norristown Railroad (PG&N) in 1833.[2] During that decade, explained David E. Nye in *American Technological Sublime,* "Railway scenery was a mixture of the natural and the man-made sublime. As this notion became widespread, engineering projects took increasingly prominent places in landscape paintings...."[3] After the first bridge burned on 13 August 1862, photographer John Moran captured the Burr arch-truss installed as a temporary replacement until a more permanent iron structure could be installed.[4] An image of the iron bridge, too, is preserved in the Fairmount Park archives.

The Wissahickon Creek Viaduct marks a second phase of stone arch bridge construction on the Philadelphia & Reading Railroad (P&R), in the tradition of major structures that it built during the 1840s and '50s. The P&R acquired the PG&N by lease on 1 December 1870, designating the line up the east bank of the Schuylkill River its Norristown Branch.[5] Although the P&R evidently set out to replace the iron viaduct over Wissahickon Creek in 1873, construction had progressed only as far as the pier foundations when construction halted one year later because of the financial panic. Nolan & Brothers completed the viaduct in 1881 and 1882 for $375,000, a figure which accounted for the foundations already constructed.[6]

The present stone arch viaduct, of Talcose slate, is 510'-0" long. While the creek only flows beneath one span near the western end, the entire length is necessary to span the wide

valley. The park's Lincoln Drive passes under two spans near the eastern end. Two tracks occupy the viaduct's 28'-0" width. The five main arches each span 70'-0" long, with a rise of 23'-0", between piers 9'-6" wide at the spring line. At each end, two 10'-0" arches reduce the volume of masonry in the abutments. Although P&R Chief Engineer William Lorenz's name appears first on the builder's plaque, his assistant C. W. Buchholz apparently deserves credit for the design.[7] The masonry seems to have performed well, with iron tie rods in 1930 being the only repair on record.[8] At present, trains on the Southeastern Pennsylvania Transportation Authority (SEPTA) R6 line use the viaduct heading to and from Norristown.

Notes

1. On the subway, see U.S. Department of the Interior, HAER No. PA-464, "Henry Avenue Bridge (Wissahickon Memorial Bridge)," 1997, Prints and Photographs Division, Library of Congress, Washington, D.C.

2. Kandarich's lithograph appears in Nicholas Wainwright, *Philadelphia in the Romantic Age of Lithography* (Historical Society of Pennsylvania, 1958), 28. See also "The Wissahickon and an 'Ancient' Iron Bridge," Philadelphia *Bulletin,* 12 May 1927, copy in file: Wissahickon - Bridges, Fairmount Park Commission Archives, Philadelphia, Pa. [hereinafter cited as FPC Archives].

3. David E. Nye, *American Technological Sublime* (Cambridge, Mass.: MIT Press, 1994), 59. The author is grateful to Haven Hawley for pointing out this reference.

4. "Norristown Railroad Bridge Across the Wissahickon, from a stereograph by John Moran, ca. 1862-1863," photograph in file: Wissahickon - Bridges, FPC Archives.

5. Jay V. Hare, *History of the Reading* (Philadelphia: ABC Duplicator Co., 1966), 293.

6. Interstate Commerce Commission, Bureau of Valuation, Engineering Field Notes, Philadelphia & Reading Railroad, Box 72, RG 134, National Archives, College Park, Md.

7. Description from Albert W. Buel, "The Luxemburg Bridge from the View-point of an American Designer of Masonry Arch Bridges," *Engineering News* 47, No. 19 (8 May 1902): 364. Another version appears in Henry G. Tyrrell, *History of Bridge Engineering* (Chicago: self-published, 1911), 94.

8. Milepost 20.87, region/division/branch 101121, aperture card files, Consolidated Rail Corporation, Philadelphia, Pa. [transferred to Norfolk Southern Railway Co., Atlanta, Ga.].